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A Study

by

The Office of the Chief Economist
Securities and Exchange Commission
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Institutional Ownership, Tender Offers,
and Long-Term Investments

The views expressed herein are those of the Office of the
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PERSONS TO

CONTACT : Gregg A. Jarrell - 272-7104
Ken Lehn - 272-7147
Wayne Marr - 272-7640

One of the principal arguments made by critics of hostile tender offers is that the threat of a hostile tender offer preoccupies corporate executives with propping up short-term earnings, at the expense of investing in long-term projects, such as research and development. 1/ Although this argument, hereafter referred to as the "short-term argument", has attracted a sympathetic audience, no evidence has yet been advanced in its support. This study empirically examines the argument and concludes that it is not supported by statistical evidence presented here.

The Short-Term Argument

Central to the short-term argument is the observation that institutional investors (e.g., pension funds, mutual funds) have come to dominate the ownership of corporate equity. In contrast to the traditional individual shareholder, it is argued that institutional investors have short-time horizons, and regularly "churn" their portfolios. This proclivity to churn supposedly derives from two sources: the fiduciary responsibility of fund managers, and the intensely competitive market for money managers that results in quarter-to-quarter monitoring of their performance.

This behavior of large institutional shareholders purportedly facilitates hostile tender offers - institutional investors

stand ready to tender their shares to any bidder offering even a small premium over market price. To stave off hostile takeover attempts, corporate managers supposedly try to prop up stock prices by increasing short-term earnings, even at the expense of abandoning otherwise profitable long-term investment projects in which present expenditures are incurred in anticipation of future earnings. According to proponents of the short-term argument, this induced myopia is ubiquitous among corporate executives and it is eroding our country's ability to compete in the international economy. 2/

On conceptual grounds, many economists are critical of the short-term argument. 3/ Implicit in the short-term argument is the view that the capital market systematically undervalues expected earnings. The argument assumes that investors are persistently fooled by firms that reduce expenditures on economically viable long-term investment projects in order to inflate present earnings. Economists argue that the arbitrage possibilities presented by systematic mispricing of securities creates strong financial incentives for self-correction in the stock market. This occurs as sophisticated investors bid up (down) the price of undervalued (overvalued) securities until the price of a security equals an unbiased estimate of its "true" value. The economists' view does not deny that under some circumstances, corporate managers may have incentives to artificially inflate earnings in ways that are costly for investors to monitor. Inflating

short-term earnings by reducing expenditures on otherwise profitable investment projects, however, is too visible, particularly to sophisticated investors such as institutional funds. Firms that followed this practice, according to these economists, would unfavorably affect their stock price, thereby rendering this strategy ineffective in staving off hostile tender offers.

Although economists have not directly examined the relationship between institutional ownership, hostile tender offers, and investment in long-term projects, there is an abundance of indirect evidence that is inconsistent with the short-term argument. There is, for example, considerable stock price evidence showing that the market effectively values time-discounted cash flows, not simply current reported earnings. For example, the market does not devalue companies that switch their inventory valuation from first-in, first-out (FIFO) to last-in, first-out (LIFO), even though this accounting change is supposed to reduce reported earnings during periods of positive inflation rates. 4/ Also, the fact that price-earnings ratios vary widely across firms indicates that the market does discriminate in assessing the future prospects of firms. 5/ In addition, received wisdom holds that the principal sources of financing for venture capital firms are institutional investors, which seems to damage the argument that institutional investors are attracted only to firms with relatively high short-term earnings.

Testable Implications of the Short-Term Argument

Besides this abundance of indirect evidence, which is inconsistent with the short-term argument, no evidence that directly addresses the short-term argument has yet been presented by either its proponents or its critics. 6/ Given the profound implications of accepting this argument, it is important that it be subjected to rigorous empirical testing. In our view, the short-term argument has the following testable implications:

- ° An inverse relationship should exist between the percentage of a firm's equity held by institutional investors and the level of the firm's investment in long-term projects, such as R&D (i.e., the greater the institutional holdings, the lower is R&D).
- ° Target firms in tender offers should exhibit high spending on long-term investment projects relative to their past experience, and relative to other firms in the same industry
- ° The percentage of equity held by institutional investors in target firms of tender offers should be higher than the corresponding figure for non-target firms in the same industry, preceding their takeover.
- ° The public announcement by firms that they are embarking on a new long-term investment project should result in a negative stock price reaction, reflecting the market's expectation that short-term earnings will be adversely affected.

The remainder of this study reports the results from an empirical investigation of these and related implications of the short-term argument.

Empirical Results

Institutional Holdings and Investments in R&D

The short-term argument makes a testable prediction

about the relationship between the percentage of a firm's equity held by institutions and its investment in long-term projects. Since this argument states that the growth of institutional ownership is inducing myopia among corporate executives, we should observe relatively low (high) investment in long-term projects by companies having a large (small) percentage of equity held by institutions.

To examine the relationship between institutional ownership of corporate equity and investment in long-term projects, we collected data for 324 firms representing a cross section of industries including aerospace, appliances, automobiles, chemicals, drugs, electrical, fuel, information processing, instruments, leisure, farm machinery, paper, personal and home care products, semiconductors, steel, telecommunications, food and beverages, and tires and rubber. This sample consists of all firms in these industries which were listed in the Business Week "R&D Scoreboard" for each of the years, and for which we were able to obtain data on institutional ownership. For each of these firms we collected the following data for each of years 1980-1983: the percentage of common equity held by institutions that report to the SEC under Rule 13F (i.e., institutional funds with combined equity assets in excess of \$100 million), total revenues, net income before extraordinary items or discontinued operations, and company sponsored R&D expenditures, which is our proxy for the companies' investment in long-term projects. The firms vary

widely in size, ranging from Gelman Sciences with 1983 revenues of \$40 million to Exxon with 1983 revenues of \$89 billion.

In short, these data tend to refute the short-term argument. Table 1 shows that institutional ownership, as a percentage of common equity, has steadily increased from an average of 30.0 in 1980 to 38.0 in 1983. Concomitant with this increase has been a steady increase in the average ratio of R&D to revenues, from 3.38% in 1980 to 4.03% in 1983. In the aggregate, then, institutional ownership has been increasing, but there is no evidence that corporate managers have become increasingly myopic by investing more in short-term projects. Indeed, the opposite is true, according to these data.

Since the level of a firm's R&D expenditures is determined by many factors, it is useful to probe behind the aggregate data to detect the incremental impact of institutional ownership on R&D expenditures. Table 2 contains results from estimation of a regression equation in which the average R&D to revenues ratio (1980-1983) for each of the firms is regressed on: i) the average percentage of equity held by institutional investors in the firm over the same period, and ii) a series of industry dummy variables. These results reveal, holding industry effects constant, that there is a direct and statistically significant relationship between institutional ownership and R&D expenditures. This means that the higher the institutional holdings in a firm, the higher is its R&D activity. Although these results do not establish that higher institutional

ownership causes high R&D expenditures, they do strongly suggest that institutional investors are not deterred from investing in firms with high R&D expenditures.

The causal relationship between institutional ownership and R&D expenditures can be investigated empirically by examining what happens to R&D expenditures in firms that experience changes in the percentage of its equity held by institutional investors. In many of the 324 firms in our sample, there were sizeable changes in the percentage of equity held by institutions, ranging from a decline of 29 percentage points in Mattel to an increase of 48 percentage points in Outboard Marine. The short-term argument predicts that companies such as Outboard Marine will become more vulnerable to hostile takeovers. As a result, these companies will become increasingly more preoccupied with short-term earnings, which should manifest itself in reductions in R&D expenditures. By the same logic, companies experiencing substantial reductions in institutional ownership will feel less threatened by a hostile takeover, which should result in an increase in their R&D expenditures.

Tables 3 and 4 list results which contradict the prediction of the short-term argument. In Table 3, we list the average changes in the ratio of R&D outlays to sales from 1980 to 1983 for firms that experienced a decline in institutional ownership and for groups of firms that experienced progressively larger increases in institutional ownership. The average

change in R&D-sales ratio for the firms experiencing a decline in institutional ownership was 0.67%. The corresponding change for firms experiencing an increase in institutional ownership was almost identical, 0.65%. Furthermore, no discernible pattern in R&D changes exists among firms with increasingly larger positive changes in institutional holdings.

Table 4 contains regression results from an equation in which the change in R&D-revenue ratio for each of the 324 firms is regressed on the change in institutional holdings and a set of industry dummy variables. These results indicate that a positive, but statistically insignificant relationship exists between changes in institutional holdings and changes in R&D expenditures. In short, Tables 3 and 4 do not provide empirical support for the argument that an increase in institutional ownership causes corporate managers to become myopic.

R&D Activity and Institutional Ownership in Target Firms of Tender Offers

Another testable proposition of the short-term argument is the contention that firms which invest in long-term projects will suffer declines in the market value of their equity, and possibly a takeover. This proposition implies that R&D expenditures in target firms of tender offers should be high relative to the firm's past experience and relative to an industry control group of nontarget firms.

To test this proposition, we consulted the pre-tender offer, 10-K reports of all target firms in successful tender offers during

the period 1981-1984. Of the 217 target firms in this sample, 160 firms reported that their R&D expenditures were "not material". This high percentage of actual targets not reporting material R&D outlays suggests that it is incorrect to identify actual targets with intensive R&D activity. For the remaining 57 firms in the sample having material R&D outlays, we calculated the R&D-to-revenue ratio in the year immediately preceding the tender offer, and in the three prior years. For the same years, we also calculated these ratios for the industries in which these firms competed.

Table 5 shows that, contrary to the short-term argument, the value weighted R&D-revenue ratio for target firms, 0.77%, was less than one-half that of the industry control groups, 1.66%, in the year immediately preceding the tender offer. Furthermore, these data were not significantly different from the corresponding data in the three previous years: 0.75% for target firms and 1.49% for the industry control groups. These data strongly suggest that investment in long-term projects such as R&D does not make a firm vulnerable to takeovers.

We caution, however, against drawing the tempting inference that target firms typically "underinvest" in R&D. As Table 6 shows, these target firms were significantly smaller than their industry counterparts. Median revenue for the 57 target firms in the year immediately preceding the tender offer was \$312 million, as compared with a corresponding median of \$1382.6 million for the industry control groups. Similarly, the average revenue for

the two sets of firms was \$1731.5 million and \$2592.1 million, respectively. To the extent that economies of scale exist in R&D, which is a common and sensible belief, it is natural to expect smaller firms to have smaller R&D-revenue ratios than larger firms. Nonetheless, the data do not support the proposition that target firms tend to "overinvest" in R&D projects.

The short-term argument also predicts that institutional ownership in target firms is higher than institutional ownership in nontarget firms. Table 7 lists the average percentage of equity held by institutional investors (that report to the SEC under 13F) in 177 target firms (1981-1984) in the quarter immediately preceding the tender offer. Also listed is the corresponding average for 177 industry control groups. The data show that institutional ownership in the target firms, 19.3%, was actually lower, than it was, 33.7%, in the industry control groups. Given that target firms typically are smaller than their industry counterparts, this difference may be attributed to size differences. These data do, however, suggest that it is not high institutional ownership per se that fuels tender offers.

Stock Price Reaction to R&D Announcements

Finally, the short-term argument unambiguously predicts that the stock market devalues firms which invest in projects that impair their short-term earnings, even if these projects have a positive net present value. To test this prediction, we examined

the stock price reaction to 62 Wall Street Journal announcements that firms were embarking on an R&D project. These announcements were collected by instructing NEXIS, the news retrieval system, to provide us with all Wall Street Journal articles containing the words "research and developent" during the period 1973-1983. Using the conventional event study methodology, 7/ we estimated the net-of-market stock returns to shareholders of the 62 firms around the date on which they announced their R&D projects.

Table 8 contains the results from this experiment. On the announcement day, Day 0, these firms experienced an average abnormal return of positive 0.45%, followed by an additional 0.35% abnormal return on the next trading day. The two-day announcement return of 0.80% is statistically significant (t -statistic = 2.5) and represents a substantial net-of-market increase in the value of the firm's equity. During the 20 trading days after the announcement, the cumulative net-of-market return increases to 1.8%.

This evidence strongly refutes the proposition that the stock market values only short-term earnings, and not expected future earnings. A logical inference to be drawn from this evidence is that it is futile for corporate managers to try to forestall a hostile takeover by pumping up short-term earnings at the expense of investing in long-term projects with positive net present values.

Conclusion

The evidence reported in this study uniformly contradicts the short-term argument. This evidence shows:

- ° For a sample of 324 firms in a diverse set of industries, the percentage of equity held by institutional investors (that report to the SEC under Rule 13f) increased from 30% in 1980 to 38% in 1983. During this same period, the average R&D-revenue ratio for these firms also increased from 3.38% to 4.03%. These aggregate data do not support the argument that the growth in institutional ownership of corporate equity is forcing corporate managers to become more myopic. (See Table 1.)
- ° Regression analysis reveals that, holding industry effects constant, institutional investors actually seem to favor firms with high R&D-revenue ratios. (See Table 2.)
- ° In our sample of 324 firms, 88 firms experienced a decline in institutional ownership during this period and 236 firms experienced an increase in institutional ownership. The average change in R&D-revenue ratio for the two groups of firms, however, was almost identical - 0.67% for the former group and 0.65% for the latter group. These data refute the argument that increases in institutional ownership cause managers to focus more on the short-term. (See Table 3.)
- ° Regression analysis reveals that, holding industry effects constant, changes in institutional holdings are not correlated with changes in R&D activity. (See Table 4.)
- ° Examination of data on R&D expenditures for 57 target firms (1981-1984) reveals that these firms had an average R&D-sales ratio, 0.77%, which was less than one-half of that, 1.66%, for an industry control group in the year immediately preceding the tender offer. These data strongly suggest that investment in long-term projects does not increase a firm's vulnerability to a takeover. It is also noteworthy that an additional 160 target firms during this period reported (in their 10-K's) that their R&D expenditures were "not material". We caution against drawing the inference that

these firms became vulnerable to a takeover because they were underinvesting in R&D activity. Target firms are smaller than their industry counterparts, and to the extent there are economies of scale in R&D, it is natural to find lower R&D-sales ratios for target firms. (See Table 6.) In addition, the target firms' R&D-revenue ratio in the year immediately preceding the tender offer is not significantly different from the corresponding ratio, 0.75%, in the previous three years.

- The average percentage of equity held by institutional investors in 177 target firms (1981-1984) for which we were able to obtain ownership data was 19.3% in the quarter immediately preceding the tender offer, as compared with a corresponding average of 33.7% for firms in an industry control group of nontarget firms. These data seem to contradict the assertion that heavy institutional ownership per se gives rise to hostile takeovers. (See Table 7.)
- Stock price evidence reveals that the capital market positively values companies that announce that they are embarking on an R&D project. The net-of-market increase in the equity value of 62 firms making such announcements (1973-1983) was 0.80% over the two days following the announcement, and this increase is statistically significant. This evidence rebukes the argument that the market penalizes companies that invest in long term projects and thereby makes them candidates for - hostile takeovers.

Collectively, this evidence seems to refute the short-term argument.

We welcome comments and suggestions for improving the study from both proponents and critics of this argument.

FOOTNOTES

- 1/ This argument has appeared frequently in the business press, including "Andrew Sigler: Rules for the Takeover Game", Financier (March 1985), pp. 15-20; Peter Drucker, "Taming the Corporate Takeover", Wall Street Journal (October 30, 1984); Allan Sloan, "Why is No One Safe?", Forbes (March 11, 1985), pp. 134-140; "Will Money Managers Wreck the Economy?", Business Week (August 13, 1984), pp. 86-91. This argument also has surfaced in Congressional proposals to regulate hostile takeovers. See, for example, Martin Lipton's proposal, "The Shareholder Protection and Elimination of Takeover Abuses Act of 1985" November 20, 1984.
- 2/ Proponents of the short-term argument frequently contend that takeover fear is eroding our competitive position vis-a-vis Japan. Interestingly, however, the percentage of equity owned by institutional investors in Japan has increased significantly during the past 32 years from 38.6% in 1980 to 71.9% in 1982. (Source: Securities Markets in Japan 1984 (Tokyo: Japanese Securities Research Institute), 1983) One scholar even attributes the farsightedness of corporate management in purported Japan to the dominant ownership position of institutional investors: "In Japan, where virtually all equity is held by banks and large investment firms, the concern for short-term performance is not nearly as acute for longer-term prospects. As a result, Japanese firms are not as concerned as Western firms about short-term profits or, for that matter, profits in general." (See C. Carl Pegels, Japan vs. the West (Kluwer-Nijhoff), 1984.)
- 3/ See, for example, the testimony of Professors Harold Demsetz, Michael Bradley, and Michael Jensen in the transcript for the SEC Economic Forum on Tender Offers, February 20, 1984.
- 4/ See, for example, Shyam Sunder, "Stock Price and Risk Related to Accounting Changes in Inventory Valuation", Journal of Accounting Research (April 1975), pp. 305-313.
- 5/ These points were made by the economists at the SEC Economic Forum on Tender Offers, February 20, 1985. See footnote 3.
- 6/ Preliminary findings from this empirical inquiry were sent to SEC Chairman John S.R. Shad in two memos, dated January 22, 1985 and February 20, 1985.
- 7/ For a discussion of this methodology, see William Schwert, "Using Financial Data to Measure Effects of Regulation", Journal of Law and Economics (April 1981), pp. 121-158.

TABLE 1

Average Institutional Holdings (As Percent of
Common Equity) and Average R&D/Revenue
for 323 Corporations, 1980-1983

	<u>Average Institutional Holdings</u>	<u>Average R&D Expenditures As Percentage of Revenue</u>
1980	30.0	3.38%
1981	31.2	3.58
1982	34.3	3.98
1983	38.0	4.03

TABLE 2

OLS Estimate of Average R&D/Revenue, 1980-1983, as Function of Average Institutional Holdings, and Industry Variables
(t-statistics in parentheses)

Intercept	0.03 (6.6)
Institutional Holdings	0.0002 (2.9)
Chemicals	-0.01 (2.4)
Drugs	0.04 (5.7)
Aerospace	-0.005 (0.7)
Appliances	-0.02 (2.2)
Automobiles	-0.005 (0.4)
Leisure	-0.009 (1.1)
Fuel	-0.04 (4.4)
Paper	-0.03 (4.0)
Steel	-0.03 (2.3)
Electrical	-0.03 (3.9)
Home Care	-0.02 (2.3)
Tires and Rubber	-0.03 (2.7)
Instruments	0.003 (0.7)
Hi Tech*	0.02 (4.5)
Food	-0.02 (3.9)
N	324
R ²	0.41
F	13.1

*HiTech includes information processing, office equipment, semiconductors and telecommunications.

TABLE 3

Average Change in Institutional Holdings (as
Percent of Common Equity), 1980-1983 and Average
Change in R&D/Revenue, 1980-1983 for Firms with
Negative and Increasingly Positive Changes
in Institutional Holdings

<u>Group of Firms</u>	<u>Average Change in Institutional Holdings 1980-1983</u>	<u>Average in R&D as Percentage of Revenue, 1980-1983</u>
88 Firms with a Decline in Institutional Holdings	-5.53	0.67%
236 Firms with Increase in Institutional Holdings	13.02	0.65
79 Firms with Smallest Increase in Institutional Holdings	3.84	0.89
77 Firms with Median Increase in Institutional Holdings	10.67	0.41
80 Firms with Largest Increase in Institutional Holdings	24.33	0.64

TABLE 4

OLS Estimate of Change in R&D/Revenue,
1980-1983 as Function of Change in
Institutional Holdings, 1980-1983
and Industry Variables
(t-statistics in parentheses)

Intercept	0.006 (2.3)
Change in Institutional Holdings	0.00005 (0.6)
Chemicals	-0.0008 (0.2)
Drugs	0.01 (2.9)
Aerospace	-0.0002 (0.0)
Appliances	-0.005 (0.8)
Automobiles	-0.01 (1.6)
Leisure	0.001 (0.2)
Fuel	-0.005 (0.9)
Paper	-0.005 (1.0)
Steel	-0.003 (0.4)
Electrical	-0.002 (0.5)
Homecare	-0.004 (0.9)
Tires and Rubber	-0.0008 (0.1)
Instruments	0.0009 (0.3)
HiTech*	0.003 (1.1)
Food	-0.002 (0.5)
N	324
R ²	0.07
F	1.4

*Hi Tech includes information processing, office equipment,
semiconductors, and telecommunications.

TABLE 5

R&D as Percentage of Revenue for 57 Target Firms
and their Industry Groups in Year Prior to
Tender Offer and the Three Previous Years

<u>Group of Firms</u>	R&D as Percentage of Revenue in Year Preceding <u>Tender Offer</u>	R&D as Percentage of Revenue During Previous <u>Three Years</u>
Target Firms	0.77%	0.75%
Industry Group	1.66	1.49

TABLE 6

Median Revenue and Average Revenue in Year Prior
to Tender Offer for 57 Target Firms and
Their Industry Groups

<u>Group of Firms</u>	<u>Median Revenue in Year Preceding Tender Offer (in millions)</u>	<u>Average Revenue in Year Preceding Tender Offer (in millions)</u>
Target Firms	\$ 312.0	\$1731.5
Industry Group	1382.6	2592.1

TABLE 7

Percentage of Equity Held by 13f Institutions
in 177 Target Firms of Tender Offers and
Their Industry in Quarter Prior to
Tender Offer

<u>Group of Firms</u>	<u>Average Percentage of Equity Held by 13f Institutions</u>
Target Firms	19.3%
Industry Group	33.7

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TABLE 8

Abnormal Returns of NYSE and Amex Listed Companies
that Announced Research and Development Budget/Centers
During January 1, 1973 through December 31, 1983.
Event Day 0 is the announcement day.

Event Day	Daily Abnormal Return	Cumulative Daily Abnormal Return	Percent Negative	Number of Firms
-20	0.10	0.10	50.0	62
-19	-0.27	-0.17	64.5	62
-18	0.14	-0.03	51.6	62
-17	-0.23	-0.25	50.0	62
-16	-0.18	-0.43	45.2	62
-15	0.12	-0.32	56.5	62
-14	0.03	-0.29	53.2	62
-13	-0.08	-0.37	58.1	62
-12	0.33	-0.04	53.2	62
-11	-0.70	-0.74	61.3	62
-10	-0.24	-0.98	62.9	62
-9	0.03	-0.95	48.4	62
-8	-0.50	-1.45	59.7	62
-7	0.11	-1.35	51.6	62
-6	0.07	-1.27	51.6	62
-5	-0.18	-1.45	59.7	62
-4	0.37	-1.08	37.1	62
-3	0.37	-0.71	43.5	62
-2	-0.10	-0.81	61.3	62
-1	-0.29	-1.10	58.1	62
0	0.45	-0.65	37.1	62
1	0.35	-0.30	46.8	62
2	0.31	0.02	46.8	62
3	-0.01	0.01	45.2	62
4	0.09	0.10	45.2	62
5	0.36	0.46	50.0	62
6	-0.15	0.31	48.4	62
7	0.29	0.60	43.5	62
8	0.12	0.72	50.0	62
9	0.26	0.97	54.8	62
10	0.29	1.26	41.9	62
11	0.38	1.65	45.2	62
12	0.14	1.79	51.6	62
13	0.16	1.95	50.0	62
14	-0.02	1.93	50.0	62
15	0.26	2.19	48.4	62
16	0.15	2.34	46.8	62
17	-0.27	2.07	51.6	62
18	-0.31	1.76	58.1	62
19	0.09	1.86	53.2	62
20	-0.05	1.80	51.6	62